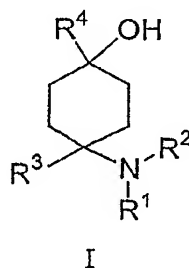


Amendments to the Claims:

The following listing of claims replaces all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (original) A substituted 4-aminocyclohexanol compound corresponding to formula I,



wherein

R¹ and R² independently of one another represent H; C₁₋₈-alkyl or C₃₋₈-cycloalkyl, in each case saturated or unsaturated, branched or unbranched, mono- or polysubstituted or unsubstituted; aryl- or heteroaryl, in each case mono- or polysubstituted or unsubstituted; or aryl, C₃₋₈-cycloalkyl or heteroaryl bonded via C₁₋₃-alkylene and in each case mono- or polysubstituted or unsubstituted; wherein R¹ and R² are not both H, or the radicals R¹ and R² together form a ring and represent CH₂CH₂OCH₂CH₂, CH₂CH₂NR⁵CH₂CH₂ or (CH₂)₃₋₆,

wherein

R⁵ represents H; C₁₋₈-alkyl or C₃₋₈-cycloalkyl, in each case saturated or unsaturated, branched or unbranched, mono- or polysubstituted or unsubstituted; aryl- or heteroaryl, in each case mono- or polysubstituted or unsubstituted; or aryl, C₃₋₈-cycloalkyl or heteroaryl bonded via C₁₋₃-alkylene and in each case mono- or polysubstituted or unsubstituted;

R³ represents C₁₋₈-alkyl or C₃₋₈-cycloalkyl, in each case saturated or unsaturated, branched or unbranched, mono- or polysubstituted or

unsubstituted; or aryl, C₃₋₈-cycloalkyl or heteroaryl bonded via a saturated or unsaturated, branched or unbranched, substituted or unsubstituted C₁₋₄-alkyl group and in each case unsubstituted or mono- or polysubstituted;

R⁴ represents C₃₋₈-cycloalkyl, aryl or heteroaryl, in each case unsubstituted or mono- or polysubstituted; -CHR⁶R⁷, -CHR⁶-CH₂R⁷, -CHR⁶-CH₂-CH₂R⁷, -CHR⁶-CH₂-CH₂-CH₂R⁷, -C(Y)R⁷, -C(Y)-CH₂R⁷, -C(Y)-CH₂-CH₂R⁷ or -C(Y)-CH₂-CH₂-CH₂R⁷; or -R⁸-L-R⁹

wherein

Y = O, S or H₂;

R⁶ represents H; C₁₋₇-alkyl, saturated or unsaturated, branched or unbranched, mono- or polysubstituted or unsubstituted; or C(O)O-C₁₋₆-alkyl, saturated or unsaturated, branched or unbranched, mono- or polysubstituted or unsubstituted;

R⁷ represents H; C₃₋₈-cycloalkyl, aryl or heteroaryl, in each case unsubstituted or mono- or polysubstituted;

R⁸ represents aryl or heteroaryl, in each case unsubstituted or mono- or polysubstituted;

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)₂-; and

R⁹ represents aryl or heteroaryl, in each case unsubstituted or mono- or polysubstituted,

or a salt thereof with a physiologically tolerated acid.

2. (original) The compound of claim 1, wherein said compound is in the form of a free base.

3. (original) The compound of claim 1, wherein said compound is present in the form of a pure enantiomer or pure diastereoisomer.

4. (original) The compound of claim 1, wherein said compound is present in the form of a mixture of stereoisomers.

5. (original) The compound of claim 1, wherein said compound is present in the form of a racemic mixture.

6. (original) The compound of claim 1, wherein said compound is present in the form of a solvate.

7. (original) The compound of claim 1, wherein said compound is present in the form of a hydrate.

8. (original) The compound of claim 1, wherein

R¹ and R² independently of one another represent H or

C₁₋₈-alkyl, saturated or unsaturated, branched or unbranched, mono- or polysubstituted or unsubstituted; wherein R¹ and R² are not both H,

or

R¹ and R² together form a ring and represent CH₂CH₂OCH₂CH₂,

CH₂CH₂NR⁵CH₂CH₂ or (CH₂)₃₋₆,

wherein R⁵ represents H or

C₁₋₈-alkyl, saturated or unsaturated, branched or unbranched, mono- or polysubstituted or unsubstituted.

9. (original) The compound of claim 8, wherein:

R¹ and R² independently of one another represent H or

C₁₋₄-alkyl, saturated or unsaturated, branched or unbranched, mono- or polysubstituted or unsubstituted; where R¹ and R² are not both H,

or

R¹ and R² together form a ring and represent (CH₂)₄₋₅.

10. (original) The compound of claim 9, wherein:

R¹ and R² independently of one another represent methyl or ethyl or R¹ and R² together form a ring and represent (CH₂)₅.

11. (original) The compound of claim 1, wherein:

R³ represents C₃₋₈-cycloalkyl, unsubstituted or mono- or polysubstituted; or aryl, C₃₋₈-cycloalkyl or heteroaryl bonded via a saturated or unsaturated,

unbranched, substituted or unsubstituted C₁₋₄-alkyl group and in each case unsubstituted or mono- or polysubstituted.

12. (original) The compound of claim 1, wherein:

R³ represents C₅₋₆-cycloalkyl, unsubstituted or mono- or polysubstituted; or C₅₋₆-cycloalkyl, phenyl, naphthyl, anthracenyl, thiophenyl, benzothiophenyl, pyridyl, furyl, benzofuranyl, benzodioxolanyl, indolyl, indanyl, benzodioxanyl, pyrrolyl, pyrimidyl or pyrazinyl bonded via a saturated, unbranched C₁₋₂-alkyl group and in each case unsubstituted or mono- or polysubstituted.

13. (original) The compound of claim 1, wherein:

R³ represents phenyl, pyridyl, furyl or thiophenyl bonded via a saturated, unbranched C₁₋₂-alkyl group and in each case unsubstituted or mono- or polysubstituted.

14. (original) The compound of claim 1, wherein:

R⁴ represents C₃₋₈-cycloalkyl, aryl or heteroaryl, in each case unsubstituted or mono- or polysubstituted; or -R⁸-L-R⁹.

15. (original) The compound of claim 1, wherein:

R⁴ represents cyclobutyl, cyclopropyl, cyclopentyl, cyclohexyl, cycloheptyl, cyclooctyl, anthracenyl, indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, dioxolanyl, adamantyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl, in each case unsubstituted or mono- or polysubstituted; or -R⁸-L-R⁹.

16. (original) The compound of claim 1, wherein:

R⁴ represents cyclopentyl, cyclohexyl, cycloheptyl, cyclooctyl, anthracenyl, indolyl, naphthyl, benzothiazolyl, benzofuranyl, benzothiophenyl, indanyl,

benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, in each case unsubstituted or mono- or polysubstituted; or -R⁸-L-R⁹.

17. (previously presented) The compound of claim 1, wherein:

R⁸ represents indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl, in each case unsubstituted or mono- or polysubstituted;
L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)-, -O-, -S- or -S(O)₂;

or

R⁹ represents indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl, in each case unsubstituted or mono- or polysubstituted.

18. (previously presented) The compound of claim 1, wherein:

R⁸ represents indolyl, benzothiophenyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, in each case unsubstituted or mono- or polysubstituted;

L represents -C(O)-NH-, -NH-C(O)-, -C(O)-O-, -O-C(O)- or -S(O)₂;

or

R⁹ represents indolyl, benzothiophenyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, in each case unsubstituted or mono- or polysubstituted.

19. (previously presented) The compound of claim 1, wherein:

R⁸ represents unsubstituted indolyl;

L represents -S(O)₂-; and

R⁹ represents unsubstituted phenyl.

20. (previously presented) The compound of claim 1, wherein:

R⁴ represents -CHR⁶R⁷, -CHR⁶-CH₂R⁷, -CHR⁶-CH₂-CH₂R⁷, -CHR⁶-CH₂-CH₂-CH₂R⁷, -C(Y)R⁷, -C(Y)-CH₂R⁷, -C(Y)-CH₂-CH₂R⁷ or -C(Y)-CH₂-CH₂-CH₂R⁷ and Y = O, S or H₂.

21. (previously presented) The compound of claim 1, wherein:

R⁴ represents -CHR⁶R⁷, -CHR⁶-CH₂R⁷, -CHR⁶-CH₂-CH₂R⁷, -C(Y)R⁷, -C(Y)-CH₂R⁷ or -C(Y)-CH₂-CH₂R⁷ and Y = O or S.

22. (previously presented) The compound of claim 1, wherein:

R⁴ represents -CHR⁶R⁷, -CHR⁶-CH₂R⁷, -C(Y)R⁷ or -C(Y)-CH₂R⁷ and Y = O.

23. (previously presented) The compound of claim 20, wherein:

R⁶ represents H;

C₁₋₄-alkyl, saturated or unsaturated, branched or unbranched, mono- or polysubstituted or unsubstituted; or

C(O)O-C₁₋₄-alkyl, saturated or unsaturated, branched or unbranched, mono- or polysubstituted or unsubstituted.

24. (previously presented) The compound of claim 20, wherein:

R⁶ represents H; or

C₁₋₄-alkyl, saturated or unsaturated, branched or unbranched, mono- or polysubstituted or unsubstituted.

25. (previously presented) The compound of claim 20, wherein:

R⁶ represents H, CH₃ or C₂H₅.

26. (previously presented) The compound of claim 20, wherein:

R⁷ represents C₃₋₈-cycloalkyl, aryl or heteroaryl, in each case unsubstituted or mono- or polysubstituted.

27. (previously presented) The compound of claim 20, wherein:

R⁷ represents cyclobutyl, cyclopropyl, cyclopentyl, cyclohexyl, cycloheptyl, cyclooctyl, anthracenyl, indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, fluorenyl, fluoranthenyl, benzothiazolyl, benzotriazolyl or benzo[1,2,5]thiazolyl or 1,2-dihydroacenaphthenyl, pyridinyl, furanyl, benzofuranyl, pyrazolinonyl, oxopyrazolinonyl, dioxolanyl, adamantyl, pyrimidinyl, quinolinyl, isoquinolinyl, phthalazinyl or quinazolinyl, in each case unsubstituted or mono- or polysubstituted.

28. (previously presented) The compound of claim 20, wherein:

R⁷ represents cyclopentyl, cyclohexyl, cycloheptyl, cyclooctyl, anthracenyl, indolyl, naphthyl, benzofuranyl, benzothiophenyl, indanyl, benzodioxanyl, benzodioxolanyl, acenaphthyl, carbazolyl, phenyl, thiophenyl, furyl, pyridyl, pyrrolyl, pyrazinyl or pyrimidyl, in each case unsubstituted or mono- or polysubstituted.

29. (previously presented) The compound of claim 1, wherein said compound is selected from the group consisting of:

- 4-benzyl-4-dimethylamino-1-phenethylcyclohexanol and the corresponding hydrochloride,
- 4-dimethylamino-1,4-diphenethylcyclohexanol and the corresponding hydrochloride,
- 4-benzyl-4-dimethylamino-1-[2-(2-fluorophenyl)ethyl]cyclohexanol and the corresponding hydrochloride,
- 4-benzyl-4-dimethylamino-1-[2-(4-fluorophenyl)ethyl]cyclohexanol and the corresponding hydrochloride,
- 4-dimethylamino-4-(2-fluorobenzyl)-1-phenethylcyclohexanol and the corresponding hydrochloride,
- 4-dimethylamino-4-(3-fluorobenzyl)-1-phenethylcyclohexanol and the corresponding hydrochloride,

- 4-dimethylamino-4-(4-fluorobenzyl)-1-phenethylcyclohexanol and the corresponding hydrochloride,
- 4-benzyl-4-dimethylamino-1-[2-(3-fluorophenyl)ethyl]cyclohexanol and the corresponding hydrochloride
- 4-benzyl-4-dimethylamino-1-(2-fluorobenzyl)cyclohexanol and the corresponding hydrochloride,
- 4-(allylmethylamino)-4-benzyl-1-phenethylcyclohexanol and the corresponding hydrochloride,
- 4-benzyl-4-dimethylamino-1-(3-fluorobenzyl)cyclohexanol and the corresponding hydrochloride,
- 4-benzyl-4-dimethylamino-1-(4-fluorobenzyl)cyclohexanol and the corresponding hydrochloride,
- 1-benzyl-4-dimethylamino-4-(3-fluorobenzyl)cyclohexanol and the corresponding hydrochloride,
- 4-benzyl-1-phenethyl-4-pyrrolidin-1-ylcyclohexanol and the corresponding hydrochloride,
- 4-benzyl-4-dimethylamino-1-(1-methyl-1H-indol-2-yl)cyclohexanol,
- 1-benzo[b]thiophen-2-yl-4-benzyl-4-dimethylaminocyclohexanol,
- 1-benzo[b]thiophen-3-yl-4-benzyl-4-dimethylaminocyclohexanol and
- 1-benzofuran-2-yl-4-benzyl-4-dimethylamino-cyclohexanol.

30. (previously presented) A pharmaceutical composition comprising:
at least one substituted 4-aminocyclohexanol compound according to claim 1 and
an auxiliary agent.

31. (previously presented) The pharmaceutical composition of claim 30, wherein
said compound is present in the form of a free base.

32. (previously presented) The pharmaceutical composition of claim 30, wherein
said compound is present in the form of a pure enantiomer or pure
diastereoisomer.

33. (previously presented) The pharmaceutical composition of claim 30, wherein said compound is present in the form of a mixture of stereoisomers.

34. (previously presented) The pharmaceutical composition of claim 30, wherein said compound is present in the form of a racemic mixture.

35. (previously presented) The pharmaceutical composition of claim 30, wherein said compound is present in the form of a solvate.

36. (previously presented) The pharmaceutical composition of claim 30, wherein said compound is present in the form of a hydrate.

37. (previously presented) The pharmaceutical composition of claim 30, further comprising an opioid or an anesthetic.

38. (previously presented) The pharmaceutical composition of claim 37, wherein said opioid is morphine.

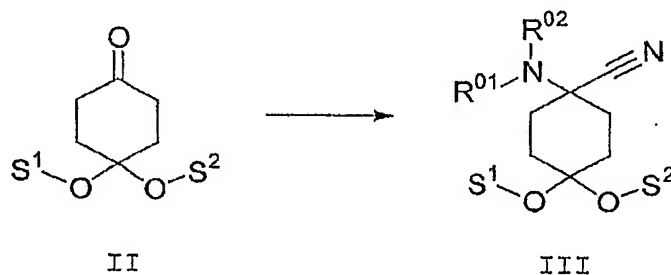
39. (previously presented) The pharmaceutical composition of claim 37, wherein said anesthetic is hexobarbital or halothane.

40. (previously presented) A method of alleviating pain selected from the group consisting of acute pain, chronic pain and neuropathic pain in a mammal, said method comprising administering to said mammal an effective pain alleviating amount of a compound according to claim 1 or coadministering to said mammal an effective amount of a compound according to claim 1 with an opioid analgesic or with an anesthetic.

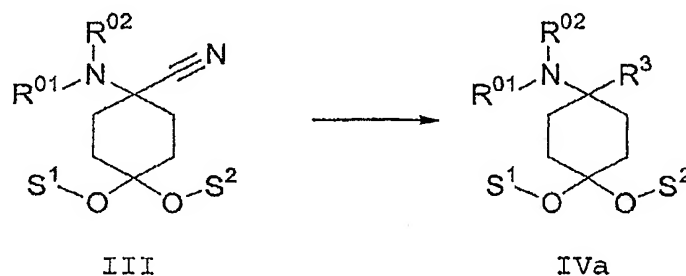
Renumbered 41-43. (canceled)

44. (currently amended) A process for producing a substituted 4-aminocyclohexanol compound according to claim 1 comprising the steps of
a. reacting a cyclohexane-1,4-dione, protected with the groups S¹ and S², according to formula II with a cyanide in the presence of a compound of the

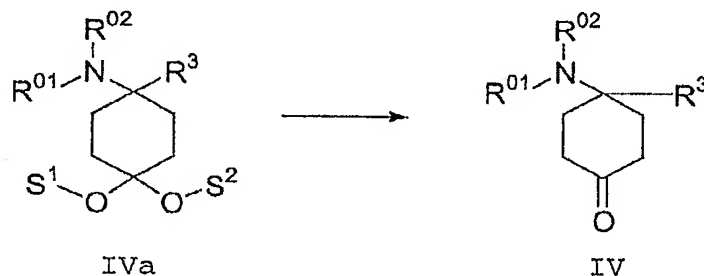
formula $\text{HNR}^{01}\text{R}^{02}$ to give a protected N-substituted 1-amino-4-oxo-cyclohexanecarbonitrile compound corresponding to formula III;



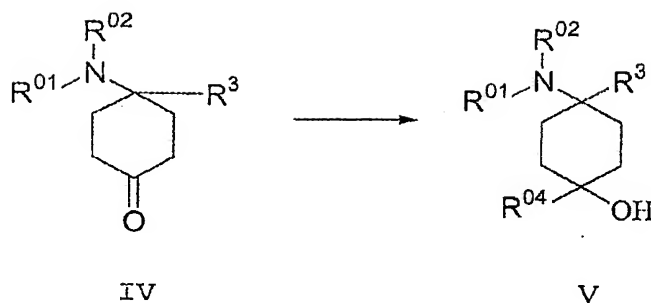
- b. reacting the compound according to formula III with organometallic reagents corresponding to the formula metal-R^3 , so that a compound corresponding to formula IVa is formed;



- c. removing the protective groups S^1 and S^2 on the compound corresponding to formula IVa to form a 4-substituted 4-aminocyclohexanone compound corresponding to formula IV;



- d. reacting the 4-substituted 4-aminocyclohexanone compound corresponding to formula IV with organometallic reagents corresponding to the formula metal-R^3 to form compound corresponding to formula V;



wherein

R^{01} and R^{02} independently of one another represent H; H ~~provided with~~ replaced by a protective group; C_{1-8} -alkyl or C_{3-8} -cycloalkyl, in each case saturated or unsaturated, branched or unbranched, mono- or polysubstituted or unsubstituted; aryl-, or heteroaryl, in each case mono- or polysubstituted or unsubstituted; or aryl, C_{3-8} -cycloalkyl or heteroaryl bonded via C_{1-3} -alkylene and in each case mono- or polysubstituted or unsubstituted;

or the radicals R^{01} and R^{02} together form a ring and represent $CH_2CH_2OCH_2CH_2$, $CH_2CH_2NR^{05}CH_2CH_2$ or $(CH_2)_{3-6}$,

wherein R^{05} represents H; H ~~provided with~~ replaced by a protective group; C_{1-8} -alkyl or C_{3-8} -cycloalkyl, in each case saturated or unsaturated, branched or unbranched, mono- or polysubstituted or unsubstituted; aryl-, or heteroaryl, in each case mono- or polysubstituted or unsubstituted; or aryl, C_{3-8} -cycloalkyl or heteroaryl bonded via C_{1-3} -alkylene and in each case mono- or polysubstituted or unsubstituted;

R^{04} represents H; H ~~provided with~~ replaced by a protective group; C_{3-8} -cycloalkyl, aryl or heteroaryl, in each case unsubstituted or mono- or polysubstituted; $-CHR^6R^7$, $-CHR^6-CH_2R^7$, $-CHR^6-CH_2-CH_2R^7$, $-CHR^6-CH_2-CH_2-CH_2R^7$, $-C(Y)R^7$, $-C(Y)-CH_2R^7$, $-C(Y)-CH_2-CH_2R^7$ or $-C(Y)-CH_2-CH_2-CH_2R^7$; or $-R^8-L-R^9$

wherein $Y = O, S$ or H_2 ;

R^6, R^7, R^8 and R^9 have the respective meanings given in claim 1,

and S^1 and S^2 independently of one another represent protective groups or together represent a protective group.

45. (previously presented) The process of claim 44, wherein S¹ and S² together represent a monoacetal group.

46. (currently amended) The process of claim 44, wherein step a) further comprises:

acylating, alkylating or sulfonating the compound corresponding to formula III in any sequence and optionally repeatedly; or

where R⁰¹ ~~[[,]]~~ and R⁰² ~~[[or R⁰⁶]]~~ = H ~~provided with~~ replaced by a protective group, removing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula III; or

where R⁰¹ or R⁰² ~~[[or R⁰⁶]]~~ = H, introducing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula III.

47. (currently amended) The process of claim 44, wherein step b) further comprises:

acylating, alkylating or sulfonating the compound corresponding to formula IVa in any sequence and optionally repeatedly; or

where R⁰¹ ~~[[,]]~~ or R⁰² ~~[[or R⁰⁶]]~~ = H ~~provided with~~ replaced by a protective group, removing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula IVa; or

where R⁰¹ or R⁰² ~~[[or R⁰⁶]]~~ = H, introducing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula IVa.

48. (currently amended) The process of claim 44, wherein step c) further comprises:

acylating, alkylating or sulfonating the compound corresponding to formula IV in any sequence and optionally repeatedly; or

where R⁰¹ ~~[[,]]~~ or R⁰² ~~[[or R⁰⁶]]~~ = H ~~provided with~~ replaced by a protective group, removing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula IV; or

where R⁰¹ or R⁰² [[or R⁰⁶]] = H, introducing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula IV.

49. (currently amended) The process of claim 44, wherein step d) further comprises:

acylating, alkylating or sulfonating the compound corresponding to formula V in any sequence and optionally repeatedly; or

where R⁰¹ [[,]] or R⁰² [[or R⁰⁶]] = H ~~provided with~~ replaced by a protective group, removing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula V; or

where R⁰¹ or R⁰² [[or R⁰⁶]] = H, introducing at least one protective group and optionally acylating, alkylating or sulfonating the compound corresponding to formula V.

50. (currently amended) The process of claim 44, wherein the protective groups [[on H]] in R⁰¹, R⁰², R⁰⁴ or R⁰⁵ are selected from the group consisting of alkyl groups, benzyl groups and carbamates.

51. (previously presented) The process of claim 50, wherein the protective groups are selected from the group consisting of fluorenylmethyl-chloroformate (Fmoc), benzyloxycarbonyl (Z) and tert-butyloxycarbonyl (Boc).

52. (previously presented) The process of claim 44, wherein the cyanide of step a) is potassium cyanide.

53. (previously presented) The process of claim 44, wherein the organometallic reagents of step b) are Grignard or organolithium reagents.

54. (previously presented) The process of claim 44, wherein the organometallic reagents of step d) are Grignard or organolithium reagents.